administering an effective amount of a drug delivery complex to the patient, the drug delivery complex comprising (i) a reaction product of gellan gum covalently bonded to polyethylene glycol, and (ii) a biologically active substance, wherein (i) the reaction product comprises nanoparticles comprising gellan gum-b-PEG-COOH with an amide bond linkage between the gellan gum and polyethylene glycol, and the biologically active substance comprises an anti-carcinogenic compound, a protein or a small molecule.

9. The composition of claim **5**, wherein the biologically active substance comprises an anti-carcinogenic compound.

10. A composition comprising (i) nanoparticles comprising a reaction product of gellan gum covalently bonded to polyethylene glycol, wherein the nanoparticles further comprise surface functionality in the form of bifunctional ligands covalently bonded thereto, and (ii) a biologically active substance complexed with the nanoparticles.

11. The composition of claim **10**, wherein said bifunctional ligands comprise (i) a first functional group capable of covalently bonding to a moiety on the nanoparticle and (ii) another moiety thereon that provides an affinity for a material within a patient.

12. The composition of claim **11**, wherein said material comprises a protein.

13. The composition of claim **11**, wherein said bifunctional ligands comprise RNA aptamer ligands.

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